Access to Microfinance & Improved Implementation of Policy Reform
(AMIR Program)

Funded By U.S. Agency for International Development

Quality Certification in Jordan

Final Report

Deliverable for Policy Component, Task No. 4.6.15
Contract No. 278-C-00-98-00029-00

August 2000

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1. Executive Overview

Developing and achieving recognition for Jordan's developing IT industry, against world-class certification standards, was the topic of a workshop sponsored by INT@J and the Information Technology sector in Amman, Jordan. The "IT Quality Certification Process" workshop, scheduled as a result of the REACH Initiative launched earlier this year, was the 12th in a series of 12 technical workshops.

If it is to be recognized and compete effectively in the world arena, the Jordanian IT industry must be able to demonstrate software process excellence. This demonstration of process excellence forms an essential cornerstone for the growth of Jordan's IT Industry.

As far as regulatory issues are concerned, there are no legal impediments preventing Jordan from building and implementing a world class IT Quality Certification Process. Most quality certification tools and techniques are readily available and may be deployed, in Jordan, via well-defined, easily licensed appraisal and audit processes.

Although an important adjunct to building a successful IT Industry, Quality Certification Processes cannot, by themselves, make Jordan competitive in the world IT market. Quality Certification Processes must be augmented by effective instruction and mentoring in world-class software development techniques, methods, and procedures. This combination of software process instruction and coaching, together with Jordanian Quality Certification, form the foundation upon which Jordan's IT Industry can demonstrate to itself, and the global IT community, that it is a worthy world player.

The improved and streamlined processes demanded of "true" world-class software development businesses point to a strong commitment by Jordan's IT Industry to not only increase market share but, also, to improve the quality of work life for Jordanian IT professionals. In this regard, there is a unique opportunity for Jordan, and INT@J in particular, to assume a world leadership position in the IT Industry.

There is both danger and promise in Quality Certification. The danger is that, many organizations believe quality ratings are an end unto themselves, thereby missing many opportunities to truly improve their organizations' business processes, competitiveness, and stature. The promise is that, those who focus on addressing process problems, rather than quality ratings, will see the greatest and fastest return in both financial and human rewards. It is, also, worth noting that these same organizations tend to see the most sustainable quality improvements.

2. QCP Issues Facing Jordan

Establishing an effective IT Industry-wide Quality Certification Program requires more than simply identifying a "Quality Mark" like the SW-CMM® or ISO9001. Quality Certification marks serve as an identifier of accomplishment but, in order to be truly meaningful in the global IT arena, must be augmented by other factors. In Jordan, as elsewhere, both IT industry and "firm level" decisions need to be made with regards to identifying those factors Jordan wishes to highlight as its IT differentiators.

The most obvious IT marketplace differentiators include:

- **Cost-** generally viewed as "cheap labor"; "low product development costs"; or "low cost of ownership";
- **Reliability**- in some ways related to "low cost of ownership" but with the added component of demonstrated performance "stability"- meaning, it does not fail;
- **Domain expertise-** frequently seen as technical or applications knowledge i.e., avionics expertise, accounting systems expertise, out-sourcing experience, or systems integration skills;
- **Location-** often marketed as "we can work while you sleep"; thereby adding effective working hours to each day; in Jordan's instance this would augment a US IT firms day by about 8 hours; and
- **Engineering talent**- can be viewed in two main ways:
  - There are too few jobs for Jordan's qualified knowledge workers, or
  - Jordan has some special engineering expertise that other IT firms "need."

Ultimately, Jordanian IT industry market differentiators are best identified by developing an industry response to the following questions:

- Who does Jordan wish to compete against? Is it:
  - India, with its vast labor reserves;
  - Ireland, with its already established IT industry and EU membership; or
  - Someone else?
- What market does the Jordanian IT Industry wish to penetrate/ develop?
- Will Quality Certification make "the difference?"

Whatever Jordan elects to emphasize as its primary market thrust, formal software process capability appraisals can be used to support/ augment marketplace credibility. Formal certifications are able to accomplish this because they provide the ability to:

- Evaluate the capabilities of a given software group via a neutral benchmark (i.e., The SW-CMM® or ISO9001-2000);

- Contrast the capabilities of Jordanian IT groups, organizations, projects, etc. to similar IT organizations outside of Jordan, using a commonly understood set of criteria;
- Plan, measure, and track software process improvement progress in an organized and well understood manner;
- Identify and establish process improvement priorities for local IT organizations, as well as the IT industry itself; and
- Determine and communicate software process maturity 'level' to potential customers and clients.

3. Quality Certification Facts & Fiction

As with any new program, there are numerous misconceptions in the marketplace with respect to SW-CMM®, ISO9001, or SPICE based certification efforts. These misconceptions include:

Common misconceptions:	The truth of the matter:
The salary of employees increases with SW-CMM® or ISO9001 certification.	You can always pay more. Higher maturity organizations can be more profitable. However, there is no guarantee that certification brings higher salaries along with it.
SW-CMM®/ ISO9001 is not difficult to implement.	If achieving Quality Certification were so easy, everyone would be there!
We'll only hire SW-CMM® savvy people. These people will ensure we attain our Quality Certification Goals.	Whomever you hire will gravitate to the level of maturity exhibited by the group or organization. If you are at Level 1, they will be at Level 1.
We can buy pre-developed processes in order to quickly obtain our Quality Certificate.	You cannot effectively use someone else's way of doing work. Buying processes will not guarantee high levels of maturity or Quality Certification.
We are different; none of this will work for us.	The SW-CMM® / ISO9001 can be effectively applied in any organization.
A Quality Certificate is all we need to get more business.	A certificate backed by unstable processes is a formula for failure. The Certificate will not, by itself, guarantee more business.

4. Process Certification Overview

Over the years, many organizations have found both the SW-CMM® and ISO9001, to be useful in their own right. When utilized optimally, ISO9001 and the SW-CMM® are worked in concert with each other, thereby offering software organizations the benefits of both. Each may be effectively utilized in complimentary ways with neither option excluding the other.

For most of the past decade, the SEI's SW- CMM® has provided IT organizations with unequaled guidance in developing more mature and predictable business practices. This guidance has come in many forms including: formal appraisal (certification), software process improvement (SPI) priority setting, and SPI progress tracking and monitoring.

ISO 9001, on the other hand, has, for years, provided internationally recognized, formal certification for process quality. ISO9001 does not provide specific guidance in maturing processes; as a result, any Level of SEI maturity (Levels 1-5) may be certified using ISO9001.

SW-CMM® based appraisals (CBA-IPI) results are often treated as a formal certification. However, formal Software Engineering Institute (SEI) certification does not exist for SW-CMM® appraisals or programs. The SEI is neither a standards nor certification body.

The SEI SW-CMM® based process improvement methods and tools are designed to effectively guide and measure "continuous process improvement" progress against a staged model (Levels 1-5). Organizations can, and do, receive formal evaluations of their organizational software maturity through SW-CMM®-based appraisals (CBA-IPI's) or for specific project efforts via Software Capability Evaluations® (SCE®s). However, industry-wide recognition of CBA-IPI/SCE® appraisal results speaks to the quality of both the SW-CMM® model and its related appraisal processes, rather than to any formal certification "scheme."

5. Jordan's Pre-existing IT QCP Environment

Interviews and discussions were held with several stakeholder organizations in Amman, during the week of 27 August 2000. These discussions include meetings with:

- IDEALsoft,
- Oneworld,
- Zeine,
- CEB, and
- ITG.

The stakeholder discussions indicated the following characteristics were commonplace within the Jordanian IT culture:

- Many IT organizations rely on a Hero-based culture in order to successfully implement/ deliver their IT projects and products;
- There is no significant demand for IT product quality or specific certification by the:
  - Local/ Arab-world customers and consumers, or
  - Internal IT functions;
- There is a heavier customer/ client focus on price, rather than 'value';
- Local IT organizations lack the management skills to effectively manage in a 'rigorous engineering' environment following 'disciplined processes'; and
- Quality is perceived as costing too much.

Additionally, the Jordanian IT Industry's past experience with ISO certification efforts was perceived as having been too costly while simultaneously providing no significant value added.

6. QCP Planning Issues-

In building a SW-CMM® based improvement program, the Jordanian IT industry it should be remembered that movement between and up SW-CMM® Levels takes time. Typical time frames include:

- SW-CMM® Level 1 to Level 2 takes about 2 years
- SW-CMM® Level 2 to Level 3 takes just under 2 years

One of the most effective methods for accelerating the overall improvement time frame is to combine both formal and informal assessment methods, tools, and techniques. The combination of these approaches assists companies in measuring their improvement progress while, at the same time, providing an indication as to when the actual appraisals should be conducted in order to demonstrate SW-CMM® level attainment.

Globally there are numerous formal IT certification programs. Two of the most widely recognized IT Appraisal/ Audit techniques include:

- ISO9001/ TickIT
- SW-CMM® / CBA-IPI

Informal/ Internal IT program appraisal programs abound as well. Examples of informal appraisal methods include programs such as:

- P-CAM® (PEP's Continuous Appraisal Method),
- PEP's Informal Software Process Review (ISPR), and
- Andersen Consulting's Informal Mini-Assessment.

Both formal and informal appraisal and evaluation programs have a unique and important role to play in the overall success of Quality Certification endeavors. Given that there are two major objectives from every effective quality program, certification and profitability, achievement of both is essential.

Informal appraisal and audit programs provide an excellent Quality Certification Program (QCP) augmentation and risk management strategy because they can be used to:

- Monitor and track the overall progress improvement programs,
- Identify near-term improvement training and support needs, and
- Successfully predict the results of formal certification events.

Whereas formal Certification is used to:

- Demonstrate achievement against formal assessment and/ or audit criteria, and

- Address customer specific Quality Certification demands.

IT Organizations that implement "real" improvement within their business structure and environment, and demonstrate that improvement via formal/ informal certification, can expect to see business practices that support:

- Improved project delivery performance (on schedule and budget);
- Higher reliability of the products built (less rework, maintenance, fewer trouble-reports);
- Improved employee retention (lower turnover);
- Competitive advantage over those exhibiting less mature behaviors, resulting in:
  - Increased market share/ penetration and
  - Improved profitability.
- Demonstration of high levels of process maturity e.g., Quality Certification (ISO or SW-CMM®).

7. Legal Constraints/ Issues

There were no legal impediments identified with respect to the creation of a Jordanian Quality Certification Program.

8. Recommendations:

As a result of the INT@J stakeholder meetings and client activities during the weeks of 29 August and 3 September, the following actions are recommended to the Jordanian IT Industry in the area of Quality Certification:

- Transfer SW-CMM® knowledge into the Jordanian IT Industry
  - The first formal SEI SW-CMM® Class was conducted in Amman on 3-5 September 2000
- Creation of a formal SW-CMM® knowledge transfer mechanism:
  - Identify local personnel to become SW-CMM® instructors, SPI mentors, etc.;
  - Development of local QCP (SW-CMM®) Consultancies;
  - Development of local SW-CMM® Certified Lead Appraisers; and
  - Development of local QCP (P-CAM®) Qualified Appraisers to conduct informal process appraisals and manage SPI efforts within and for incubator companies;
    - Initial P-CAM® Appraiser Training course offering planned for 8 & 9 October 2000,
    - Conduct and manage local improvement efforts and plan for formal SW-CMM® appraisal (already underway in four IT organizations in Jordan).
- Conduct SPI appraisals for QCP (Quality Certification):
  - Formal SW-CMM® appraisals (2- CBA-IPI appraisals are preliminarily planned, December 2000 and February 2001);
  - Informal SW-CMM® appraisals (plans for 3 informal appraisals, P-CAM® Baselines, are in place for October of 2000).
- Utilize SW-CMM® Level attainment as the criteria for award of the Jordanian Quality Mark.
- Develop Jordanian Quality Certification Program methods, benchmarks, procedures, tools, and techniques.
- Establish a local Organization(s) and a cohesive infrastructure for delivering Quality Program methods, benchmarks, procedures, tools, and techniques:
  - Preliminary company to company “information sharing” efforts have begun in this area as of 5 September 2000,
  - Proposal for creation of an Amman SPIN (Software Process Improvement Network) is underway,
  - Combine Software Center of Excellence efforts with those for Quality Certification, leveraging the knowledge transfer capabilities and infrastructure of both, to provide a more seamless integration of Project Management and Quality Certification skills targeted for use within Jordan’s IT Industry.

The most critical issues in this area are those that involve developing local expertise to:

- Support Jordan’s IT Quality Certification efforts, plans, and implementation;
- Provide process mentoring, guidance, instruction; and
- Provide formal Process/ Quality Certification.

9. What Happens Next?

The Quality Certification Program knowledge transfer has already begun, specifically in the following areas:

- Introduction to the SW-CMM® (Initial Course conducted 3-5 September 2000),
- Identification of early adopter organizations for SW-CMM® based improvement (completed 6 September 2000; four organizations have been initially targeted for implementation).

Additional activities are planned:

- Using the SW-CMM® to informally benchmark organizational performance and plan for formal appraisal/ assessment (P-CAM® Appraiser training course and P-CAM® Baseline Appraisals are planned for October 2000),
- Formal education in successful IT industry quality program implementation approaches,
- Courses on specific IT methods and techniques,
- Creation of a Jordanian certification body/ approach (should something beyond the standard ISO9001 or SEI validations be desired),
- Education and training on effective process development (Client work began September 2000),
- Courses on Process Implementation strategies and approaches, and
- Education and conduct of formal SW-CMM® appraisals (CBA-IPIs planned for December 2000 and February 2001).

10. A Final Observation

INT@J's commitment to building "True" world-class software IT development industry indicates a strong desire within Jordan to:

- Achieve an increased share of the global IT market,
- Improve the quality of work life for Jordanian IT professionals, and
- Assume a world leadership position in the IT Industry.